

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Previously Presented) An image output device for outputting a color of different tones on a medium, comprising:

a function for outputting, on said medium, test chart data having tone-changing areas where a tone of a color output changes in steps arranged alternately with tone-fixed areas where a predetermined tone of said color is output;

input means for accepting tone information from said test chart output; and

adjusting means for adjusting output to said medium based on data for correcting said tone calculated from said tone information input.

2. (Previously Presented) An image output device for outputting a color of different tones on a medium, comprising:

a function for outputting, on said medium, test chart data having tone-changing areas where a tone of a color output changes in steps arranged alternately with tone-fixed areas where a predetermined tone of said color is output, said test chart data comprising a first proof part where said tone-fixed areas are output at a specified first tone and can be compared with tones of said tone-changing areas; a second proof part where the tone-fixed areas are output at a second tone greater than the first tone and can be compared with tones of said tone-changing areas; and a third proof part where the tone-fixed areas are output at a tone between said first and second tones and can be compared with tones of said tone-changing areas; and

input means for accepting tone information on said first, second and third proof parts from the result of test chart data output on said medium, and

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

adjusting means for adjusting output on said medium based on data for correcting said tone calculated from said tone information input.

3. (Previously Presented) An image output device for printing a color of different tones on a medium, comprising:

a function for outputting, on said medium, test chart data having tone-changing areas where a tone of a color to be printed changes in steps arranged alternately with tone-fixed areas where a predetermined tone of said color is printed, said test chart data comprising a first proof part where said tone-fixed areas are output at a first tone as a tone of a color of said medium and can be compared with tones of said tone-changing areas; a second proof part where the tone-fixed areas are output at a second tone greater than the first tone and can be compared with the tones of said tone-changing areas; and a third proof part where the tone-fixed areas are output at a tone between said first and second tones and can be compared with the tones of said tone-changing areas;

input means for accepting tone information on said first, second and third proof parts from the result of test chart data output on said medium; and

adjusting means for adjusting output on said medium based on data for correcting said tone calculated from said tone information input.

4. (Previously Presented) An image output device for printing a color of different tones on a medium, comprising:

a function for outputting, on said medium, test chart data having tone-changing areas where a tone of a color to be printed changes in steps arranged alternately with tone-fixed areas where a predetermined tone of said color is printed, said test chart data comprising a first proof part where said tone-fixed areas are

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

output at a first tone as a tone of a color of said medium and can be compared with tones of said tone-changing areas; a second proof part where said tone-fixed areas are output at a second tone as a highest tone printable by a printer and can be compared with tones of said tone-changing areas; and a third proof part where the tone-fixed areas are output at a tone between said first and second tones and can be compared with tones of said tone-changing areas;

input means for accepting tone information on said first, second and third proof parts from the result of test chart data output on said medium; and

adjusting means for adjusting output on said medium based on data for correcting said tone calculated from said tone information input.

5. (Canceled).
6. (Original) An image output device according to claim 2, wherein said tone-fixed areas of said third proof part of said test chart are arranged alternately with tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.
7. (Original) An image output device according to claim 3, wherein said tone-fixed areas of said third proof part of said test chart are arranged alternately with tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.
8. (Original) An image output device according to claim 4, wherein said tone-fixed areas of said third proof part of said test chart are arranged alternately with

BEST AVAILABLE COPY

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.

9. (Currently Amended) A test chart, ~~output from an~~ produced by the image output device of claim 1, capable of outputting a color of different tones on a medium and having said test chart comprising:

_____ tone-changing areas wherein ~~where~~ a tone of the color output from the image output device changes in steps; and

_____ tone-fixed areas wherein ~~where~~ a predetermined tone of said color is output from the image output device; printed, and tone values of said tone-changing areas are readable, and

_____ wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and

_____ wherein tone values can be read when a tone difference between adjacent areas of said tone-changing areas and said tone-fixed areas is greater than a specified magnitude.

10. (Currently Amended) A test chart, ~~output from an~~ produced by the image output device of claim 1, capable of outputting a color of different tones on a medium and having said test chart comprising:

_____ tone-changing areas wherein ~~where~~ a tone of a color output from the image output device changes in steps; and

_____ tone-fixed areas ~~where~~ wherein a predetermined tone of said color is output from the image output device; printed, and tone values of said tone-changing areas are readable, said test chart comprising

BEST AVAILABLE COPY

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

_____ a first proof part ~~where~~ wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and wherein said tone-fixed areas are output at a first tone ~~that~~ and can be compared with tones of said tone-changing areas;

_____ a second proof part ~~where~~ wherein said tone-fixed areas are output at a second tone greater than the first tone; ~~and can be compared with the tones of said tone-changing areas,~~ and

_____ a third proof part ~~where~~ wherein said tone-fixed areas are output at a tone between said first and second tones ~~and can be compared with the tones of said tone-changing areas,~~

wherein tone values having a difference in tone between adjacent pairs ~~pair~~ of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second, and third proof parts from results of test chart data output on the medium.

11. (Currently Amended) A test chart ~~output from an~~ produced by the image output device of claim 1, ~~capable of outputting a color of different tones on a medium and having said test chart comprising:~~

_____ tone-changing areas ~~where~~ wherein a tone of a color output from the image output device changes in steps; and

_____ tone-fixed areas ~~where~~ wherein a predetermined tone of said color is printed; ~~and tone values of said tone-changing areas are readable, said test chart comprising~~

_____ a first proof part ~~where~~ wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and said tone-fixed areas are output at a first tone; ~~as a tone of said medium and can be compared with the tones of said tone-changing areas,~~

BEST AVAILABLE COPY

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

_____ a second proof part where ~~where~~ wherein said tone-fixed areas are output at a second tone greater than said first tone; and

_____ a third proof part where ~~where~~ wherein said tone-fixed areas are output at a tone between said first and second tones, ~~and the tones of said tone-changing areas with said tone,~~

wherein tone values having a difference in tone between adjacent pairs ~~pair~~ of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second, and third proof parts from results of test chart data output on the medium.

12. (Currently Amended) A test chart, ~~output from an~~ produced by the image output device of claim 1, ~~capable of outputting a color of different tones on a medium and having said test chart comprising:~~

_____ tone-changing areas where ~~where~~ wherein a tone of a color output changes in steps; and

_____ tone-fixed areas where ~~where~~ wherein a predetermined tone of said color is printed; ~~and tone values of said tone-changing areas are readable, said test chart comprising;~~

_____ a first proof part where ~~where~~ wherein said tone-changing areas are arranged alternately with said tone-fixed areas, said tone-fixed areas are output at a first tone as a tone of the color of said medium and can be compared with tones of said tone-changing areas;

_____ a second proof part where ~~where~~ wherein said tone-fixed areas are output at a second tone as corresponding to a greatest tone printable by a printer ~~and can be compared with the tones of said tone-changing areas;~~ and

BEST AVAILABLE COPY

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

_____ a third proof part ~~where~~ wherein said tone-fixed areas are output at a tone between said first and second tones ~~and can be compared with the tones of said tone-changing areas,~~

wherein tone values having a difference in tone between adjacent pairs ~~pair~~ of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second and third proof parts from results of test chart data output on the medium.

13. (Original) A test chart according to claim 10, wherein said tone-fixed areas of said third proof part are arranged alternately with tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.
14. (Original) A test chart according to claim 11, wherein said tone-fixed areas of said third proof part are arranged alternately with tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.
15. (Original) A test chart according to claim 12, wherein said tone-fixed areas of said third proof part are arranged alternately with tone-changeable areas of said tone-changing areas in a tone-changing direction of the tone-changing areas.
16. (Previously Presented) An image output device according to claim 1, wherein said test chart data has a particular pattern that is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas.

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

17. (Previously Presented) An image output device according to claim 2, wherein said test chart data has a particular pattern that is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas.
18. (Previously Presented) An image output device according to claim 3, wherein said test chart data has a particular pattern that is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas.
19. (Previously Presented) An image output device according to claim 4, wherein said test chart data has a particular pattern that is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas.
20. (Previously Presented) An image output device according to claim 17, wherein said tone-fixed areas of said third proof part of said test chart comprise a halftone pattern having a different dot gain from that of said tone-changing areas.
21. (Previously Presented) An image output device according to claim 18, wherein said tone-fixed areas of said third proof part of said test chart comprise a halftone pattern having a different dot gain from that of said tone-changing areas.
22. (Previously Presented) An image output device according to claim 19, wherein said tone-fixed areas of said third proof part of said test chart comprise a halftone pattern having a different dot gain from that of said tone-changing areas.

Docket No. 500.40384X00

Serial No. 09/911,715

Office Action dated December 9, 2005

23. (Previously Presented) A test chart according to claim 9, wherein:

a particular pattern is formed with said tone-changing areas and said tone-fixed areas;

said particular pattern is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas; and

a tone value of said tone-changing areas at which said particular pattern becomes visually undistinguishable can be read.

24. (Previously Presented) A test chart according to claim 10, wherein:

a particular pattern is formed with said tone-changing areas and said tone-fixed areas;

said particular pattern is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas; and

a tone value of said tone-changing areas at which said particular pattern becomes visually undistinguishable can be read.

25. (Previously Presented) A test chart according to claim 11, wherein:

a particular pattern is formed with said tone-changing areas and said tone-fixed areas;

said particular pattern is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas; and

a tone value of said tone-changing areas at which said particular pattern becomes visually undistinguishable can be read.

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

26. (Previously Presented) A test chart according to claim 12, wherein:
a particular pattern formed with said tone-changing areas and said tone-fixed areas;
said particular pattern is visually distinguishable according to a tone difference between said tone-changing areas and said tone-fixed areas; and
a tone value of said tone-changing areas at which said particular pattern becomes visually undistinguishable can be read.
27. (Previously Presented) A test chart according to claim 24, wherein said tone-fixed areas of said third proof part comprise a halftone pattern having a different dot gain from that of said tone-changing areas.
28. (Previously Presented) A test chart according to claim 25, wherein said tone-fixed areas of said third proof part comprise a halftone pattern having a different dot gain from that of said tone-changing areas.
29. (Previously Presented) A test chart according to claim 26, wherein said tone-fixed areas of said third proof part comprise a halftone pattern having a different dot gain from that of said tone-changing areas.
30. (Previously Presented) An image output device according to claim 16, wherein said particular pattern comprises a checkered pattern.
31. (Previously Presented) An image output device according to claim 20, wherein said tone-fixed areas of said third proof part comprises one of a checkered pattern and a parallel line pattern.

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

32. (Previously Presented) An image output device according to claim 21, wherein said tone-fixed areas of said third proof part comprises one of a checkered pattern and a parallel line pattern.

33. (Previously Presented) An image output device according to claim 22, wherein said tone-fixed areas of said third proof part comprises one of a checkered pattern and a parallel line pattern.

34. (New) A method of calibrating an image output device using a test chart comprising the steps of:

producing tone-changing areas on the test chart wherein a tone of a color changes in steps;

producing tone-fixed areas on the test chart using a predetermined tone of the color, wherein the tone-fixed areas are arranged alternately with the tone-changing areas,

comparing tone values of adjacent areas of the tone-changing areas and the tone-fixed areas; and

determining when a tone difference between the compared tone values of adjacent areas of said tone-changing areas and said tone-fixed areas is greater than a specified magnitude.

35. (New) A method of calibrating an image output device using a test chart comprising the steps of:

producing tone-changing areas on the test chart wherein a tone of a color output from the image output device changes in steps;

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

producing tone-fixed areas on the test chart using a predetermined tone of the color;

creating a first proof part wherein the tone-changing areas are arranged alternately with the tone-fixed areas and output at a first tone capable of being compared to tones of the tone-changing areas;

creating a second proof part wherein the tone-fixed areas are output at a second tone greater than the first tone;

creating a third proof part wherein the tone-fixed areas are output at a tone between the first tone and the second tone; and

reading tone values having a difference in tone between adjacent pairs of the tone-changing areas and said tone-fixed areas that is greater than a specified magnitude at each of the first, second, and third proof parts from results of test chart data output on the medium.

36. (New) A method of calibrating an image output device using a test chart comprising the steps of:

producing tone-changing areas on the test chart wherein a tone of a color output from the image output device changes in steps;

producing tone-fixed areas on the test chart wherein a predetermined tone of the color is printed;

creating a first proof part wherein the tone-changing areas are arranged alternately with the tone-fixed areas and output at a first tone;

creating a second proof part wherein the tone-fixed areas are output at a second tone greater than the first tone;

creating a third proof part wherein the tone-fixed areas are output at a tone between the first and second tones; and

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

reading tone values having a difference in tone between adjacent pair of tone-changing areas and tone-fixed areas that is greater than a specified magnitude at each of said first, second and third proof parts from results of test chart data output on the medium.

37. (New) A method of calibrating an image output device using a test chart comprising the steps of:

producing tone-changing areas on the test chart wherein a tone of a color output changes in steps;

producing tone-fixed areas on the test chart wherein a predetermined tone of the color is printed;

creating a first proof part wherein the tone-changing areas are arranged alternately with the tone-fixed areas and are output at a first tone;

creating a second proof part wherein the tone-fixed areas are output at a second tone corresponding to a greatest tone printable by a printer;

creating a third proof part wherein the tone-fixed areas are output at a tone between the first and second tones; and

reading tone values having a difference in tone between adjacent pairs of the tone-changing areas and the tone-fixed areas that is greater than a specified magnitude at each of the first, second, and third proof parts from results of test chart data output on the medium.

38. (New) A computer readable medium carrying thereon instructions and data for causing an image output device to create a test chart by performing the steps of:

creating tone-changing areas on the test chart wherein a tone of color output from the image output device changes in steps;

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

creating tone-fixed areas on the test chart wherein a predetermined tone of said color is output from the image output device;

wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and

wherein tone values can be read when a tone difference between adjacent areas of said tone-changing areas and said tone-fixed areas is greater than a specified magnitude.

39. (New) A computer readable medium carrying thereon instructions and data for causing an image output device to create a test chart by performing the steps of:

creating tone-changing areas on the test chart wherein a tone of a color output from the image output device changes in steps;

creating tone-fixed areas on the test chart wherein a predetermined tone of said color is output from the image output device;

creating a first proof part wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and wherein said tone-fixed areas are output at a first tone that can be compared with tones of said tone-changing areas;

creating a second proof part wherein said tone-fixed areas are output at a second tone greater than the first tone; and

creating a third proof part wherein said tone-fixed areas are output at a tone between said first and second tones;

wherein tone values having a difference in tone between adjacent pairs of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second, and third proof parts from results of test chart data output on the medium.

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

40. (New) A computer readable medium carrying thereon instructions and data for causing an image output device to create a test chart by performing the steps of:

creating tone-changing areas on the test chart wherein a tone of a color output from the image output device changes in steps;

creating tone-fixed areas on the test chart wherein a predetermined tone of said color is printed;

creating a first proof part wherein said tone-changing areas are arranged alternately with said tone-fixed areas, and said tone-fixed areas are output at a first tone;

creating a second proof part wherein said tone-fixed areas are output at a second tone greater than said first tone; and

creating a third proof part wherein said tone-fixed areas are output at a tone between said first and second tones;

wherein tone values having a difference in tone between adjacent pairs of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second, and third proof parts from results of test chart data output on the medium.

41. (New) A computer readable medium carrying thereon instructions and data for causing an image output device to create a test chart by performing the steps of:

creating tone-changing areas on the test chart wherein a tone of a color output changes in steps;

creating tone-fixed areas on the test chart wherein a predetermined tone of said color is printed;

creating a first proof part wherein said tone-changing areas are arranged alternately with said tone-fixed areas, said tone-fixed areas are output at a first tone;

Docket No. 500.40384X00
Serial No. 09/911,715
Office Action dated December 9, 2005

creating a second proof part wherein said tone-fixed areas are output at a second tone corresponding to a greatest tone printable by a printer; and

creating a third proof part wherein said tone-fixed areas are output at a tone between said first and second tones;

wherein tone values having a difference in tone between adjacent pairs of said tone-changing areas and said tone-fixed areas greater than a specified magnitude can be read at each of said first, second and third proof parts from results of test chart data output on the medium.